REMARKS

The above amendments and these remarks are responsive to the final Office action dated March 13, 2006. Claims 1-16 are pending in the application. Claims 1-16 are rejected. By way of the present amendment, claim 1 has been amended.

Applicants suggest that the above amendments present the rejected claims in better form for consideration on appeal, and so they should be entered. However, in order to ensure that the amendments are entered and considered, Applicants have submitted a Request for Continued Examination under 37 C.F.R. § 1.114. In view of the amendments above, and the remarks below, Applicants respectfully request reconsideration of the rejected claims.

Response to Arguments

Applicants gratefully acknowledge the withdrawal of the previous rejections of the claims over Naka et al. (U.S. Patent No. 5,935,331) and Yamaguchi et al. (U.S. Patent No. 6,494,987) and the previous double patenting rejections over Yamaguchi et al.

Rejections under 35 USC § 103

Claims 1-3 and 10-16 are rejected under 35 USC §103(a) as being unpatentable over Otsuka et al. (Japanese Patent Publication No. 10-312591) in view of Head et al. (European Patent Publication No. 253539). The Examiner suggests that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the adhesive-supplying nozzle in Otsuka et al, the adhesive-supplying nozzle including

cooperating pattern electrode and electric power supply taught by Head et al. Applicants respectfully disagree, and suggest the Examiner has failed to establish the *prima facie* obviousness of the rejected claims.

In order for the Examiner to rely on a reference under 35 U.S.C. § 103, that reference must be analogous prior art. Applicants suggest that while the Otsuka et al. reference relates to a manufacturing method for bonding two optical disc substrates, the Head et al. reference is directed to the industrial application of adhesives and surface coatings in production lines for packaging, parts assembly (such as shoes and aero and boat frames) or surgical dressings and drapes. There is no discussion of the preparation of optical disc substrates in the Head et al. reference, and one of ordinary skill in the art of optical disc manufacture would not be lead to the Head et al. reference, as it is not reasonably pertinent to the problem with which the inventor was concerned. In particular, the Head et al. reference does not address the preparation of optical discs so as to avoid minute voids that may be formed between the optical disc substrates, and does not provide a solution to the problem of avoiding such voids. Applicants suggest that Otsuka et al. and Head et al. are nonanalogous art, and therefore not properly combined.

Additionally, there can be no *prima facie* obviousness where the cited references fail to provide a motivation or suggestion to combine and/or modify the teachings of the references as suggested by the Examiner. Furthermore, there can be no *prima facie* obviousness where the cited references fail to provide a reasonable expectation of success.

The Otsuka et al. reference is specifically directed to dispensing adhesive between optical disc substrates to prevent air bubbles in the adhesive layer (paragraph 6). More specifically, Otsuka et al. wishes to avoid the initial formation of voids and bubbles, as spinning the adhesive on the substrate to remove them may render high-cost adhesives useless (paragraph 26). The adhesive used is therefore applied directly to the disc substrate.

In contrast, the Head et al. reference is directed to applying a fluid, whatever the fluid may be, while applying an intense electrical field to the fluid so that the fluid forms a spray (col. 2, lines 1-11). This is more or less explicitly stated at col. 4, lines 48-52, where the invention is described as including "means for subjecting the fluids at the outlets to an intense electrical field, such that the fluids will move from the sprayhead under the influence of the field to form a spray". The liquid to be applied by Head et al. is not applied directly to the disc substrate, but is rather required to be propelled through space as a spray of individual droplets.

Where a proposed modification renders the prior art unsatisfactory for its intended purpose, or changes the principle of operation of a reference, there can be no motivation or suggestion to combine the references. In this case, applying a liquid adhesive to the optical disc substrate contradicts the principle of operation of Head et al., that of applying a charged spray of droplets. Similarly, the application of a spray of droplets contradicts the principle of operation of Otsuka et al., which relies on dispensing liquid adhesive onto the disc substrate to minimize voids and bubbles in the adhesive.

In addition, the combination proposed by the Examiner fails to provide a reasonable expectation of success. The Otsuka et al. teaches the application of an adhesive by a spreading nozzle 12, which is shown to be in close proximity to the disc substrate, as shown in Fig. 1. The adhesive is disclosed as applied in a continuous torus shape around the axis of rotation of the disc substrate, the upper disc substrate is placed in contact with the adhesive ring, and the adhesive is then spread even and smoothly with no voids or bubbles between the substrates. In strong contrast, the Head et al. reference teaches the spraying of a fluid at a distance from the substrate. There is no suggestion that application of a fluid using the apparatus of Head et al. would yield a satisfactory adhesive coating for preparation of a disc substrate, much less the degree of predictability required to create a reasonable expectation of success.

In view of the above remarks, Applicants suggest the Examiner has failed to establish the *prima facie* obviousness of claim 1, and that therefore the rejection of claim 1 and the claims depending therefrom should be withdrawn.

However, in the interest of furthering the prosecution of the application, and without acknowledging the propriety of the rejection, Applicants have taken this opportunity to amend claim 1 to more particularly define their invention.

Claim l, as amended, recites an apparatus for bonding two optical disc substrates together that includes "an adhesive-supplying nozzle which ... is one electrode, an electrode means which is another electrode" where "the adhesive-supplying nozzle is connected to a terminal of the electric power supply, and the electrode means is connected to another terminal of the electric power supply".

In the apparatus of amended claim 1, the adhesive-supplying nozzle itself is an electrode, and a voltage is applied to a space between the tip of the adhesive-supplying nozzle (a first electrode) and the optical disc substrate which has the electrode means or second electrode in the vicinity of the surface of the disc substrate opposite the surface that faces the nozzle. Even if the optical disc substrate, which is an insulating material, is disposed between the adhesive-supplying nozzle and the electrode means, a high-level voltage is generated in the space between the tip of the adhesive-supplying nozzle and the optical disc substrate. When an adhesive is applied via the nozzle, the end of the liquid adhesive being applied tapers due to the generated voltage. Therefore, when the adhesive contacts the optical disc substrate, the initial contact area between the tip of the adhesive and the optical disc substrate is reduced. In this manner, voids are prevented from being formed between the adhesive and the optical disc substrate.

Put another way, the space between the tip of the adhesive-supplying nozzle and the electrode means may be regarded as a circuit equivalent to a series connection of a first capacitance (CI) which is the space between the tip of the adhesive-supplying nozzle and the optical disc substrate, and a second capacitance (C2) which is the optical disc substrate itself. In claim 1, as amended, because the voltage is directly applied to the adhesive-supplying nozzle, a predetermined voltage can be applied to the first capacitance (CI).

Applicants note that the Head et al. reference fails to disclose an apparatus wherein the sprayhead is an electrode. Instead, the apparatus of Head et al. includes an electrode 18 provided at a position adjacent to, but not connected with, sprayhead 1. An

electric charge is applied to the individual droplets of adhesive or surface coating that pass near electrode 18. Head et al. discloses that the placement and shape of the electrode is critical. For example at col. 8, lines 20-28, "the shape and location of and relative potential on the auxiliary electrode(s) all affect the spray pattern". However, Head et al. fails to disclose an apparatus in which a predetermined voltage is applied to a space between the tip of the nozzle and the substrate. Therefore, the apparatus of Head et al. is not able to apply liquid adhesive so that the end of the adhesive which is being applied tapers before contacting the optical disc substrate. Therefore, the apparatus of Head et al. does not minimize the initial contact area between the tip of the applied adhesive and the optical disc substrate, and fails to reduce the formation of voids between the adhesive and the optical disc substrate.

As none of the references disclose each and every element of the claims, as amended, Applicants suggest the cited references fail to establish the *prima facie* obviousness of claim 1, and respectfully request the withdrawal of the rejection of claim 1 under 35 U.S.C. § 103. As claims 2 to 16 depend from claim 1, Applicants suggest these claims are similarly allowable over the Otsuka et al. and Head et al. references.

The Examiner has suggested that the limitations in the claims directed to the material worked upon are of no significance in determining the patentability of the apparatus claimed. Specifically, the Examiner suggests that the limitations in the claims directed to functional language constitute a recitation with respect to the manner in which the claimed apparatus is intended to be employed, and do not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural

limitations of the claim. Applicants respectfully suggest that functional limitations define the recited apparatus by a function it is capable of performing. As set out at MPEP § 2173.05(g), there is nothing inherently wrong with defining an aspect of the claimed invention in functional terms, and further, the functional limitations of the claim must be evaluated and considered for what they fairly convey to a person of ordinary skill in the art.

In this case, Applicants respectfully disagree with the Examiner that the structure of the apparatus of Otsuka et al., even when modified by Head et al., could meet the functional limitations of the claims, for at least the following reason: Neither the apparatus of Otsuka et al. nor the apparatus of Head et al. is capable of applying a liquid adhesive from a nozzle that is an electrode to an optical disc substrate. Therefore, even when considered in combination, the resulting apparatus cannot be structurally capable of applying a liquid adhesive from a nozzle that is an electrode to an optical disc substrate.

Regarding claim 13, the Examiner suggests that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Otsuka et al. according to Head et al. to alternatively include a functionally equivalent lifting member on the lower mounting support for moving the optical discs together as would have been well known in the art. Applicants respectfully disagree, and suggest that as the apparatus of Head et al. has no disclosed utility for optical disc manufacture, the reference must therefore necessarily fail to provide an incentive to modify Otsuka et al. so as to provide an upper support for an optical disc substrate. In addition, Head et al. exemplifies only the spattering of spray onto a flat substrate, and fails to disclose the formation of any type

of sandwich structure. The Head et al. reference can therefore provide no motivation for providing a lifting member to move a lower support upward to form such a sandwich structure. Applicants suggest that the subject matter of claim 13 is therefore separately patentable over the cited references for at least the reasons provided above.

The Examiner has rejected claims 4-9 under 35 U.S.C. § 103(a) as being unpatentable over Otsuka et al. and Head et al., as applied to claims 1-3 and 10-16 above, and further in view of Morley (U.S. Patent no. 4,724,296). In particular, the Examiner suggests it would have been obvious to one of ordinary skill in the art at the time the invention was made for the electric power supply in Otsuka et al. as modified by Head et al. to generate one of alternating or direct current, as was well known and conventional for electric power supplies of this type as shown by Morley. Applicants respectfully disagree

As discussed above, Applicants suggest there is insufficient motivation or suggestion to combine Otsuka et al. and Head et al., and that therefore the *prima facie* obviousness of claim 1 has not been established.

In addition, Applicants note that the Morley reference is directed to an apparatus for generating electrical plasma in a plasma processing system for vacuum plasma processing operations. One of ordinary skill in art of optical disc manufacture would not look to Morley as vacuum plasma processing is not relevant to optical disc manufacture, and is not reasonably pertinent to the problems solved by the Applicants' invention.

The apparatus of claim 1, as amended, permits the application of a liquid adhesive onto an optical disc substrate so that voids between the adhesive and the optical disc

substrate are rarely or never generated. Because Head et al., and Morley do not address the problem of voids in the adhesive used to prepare optical disc substrates, there is no motivation to arrive at the apparatus of amended claim 1 by means of combining Otsuka et al., Head et al., and/or Morley.

As the technical fields of Otsuka et al., Head et al., and Morley are entirely different from each other, and because the references are directed to different solutions to distinct problems, the citations are not properly combined to establish obviousness under 35 U.S.C. § 103.

Additionally, Applicants suggest that as claims 4-9 depend from amended claim 1, claims 4-9 are therefore patentably unobvious over the cited references. Applicants respectfully request the withdrawal of the rejections of claims 4-9 under 35 U.S.C. § 103.

It is believed that the subject patent application has been placed in condition for allowance, and such action is respectfully requested. If the Examiner has any questions or concerns, or if a telephone interview would in any way advance prosecution of the application, please contact the undersigned agent of record.

The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 11-1540.

CERTIFICATE OF MAILING

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Suzanne Lukas-Werner

Respectfully submitted,

KOLISCH HARTWELL, P.C.

Anton E. Skaugset

Anton E. Skaugset
Registration No. 38,617
Customer No. 23581
Attorney for Applicant
520 S.W. Yamhill Street, Suite 200
Portland, Oregon 97204
Telephone: (503) 224-6655
Facsimile: (503) 295-6679